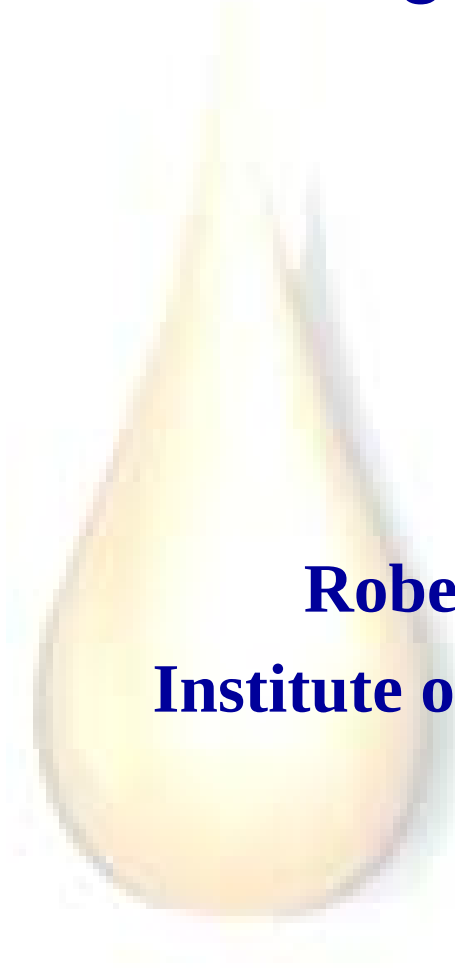
TRANSFORMATIONS IN THE FOOD INDUSTRY: Reducing Trans Fat in the Diet



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U.S. DIETARY GUIDELINES 2005
Recommendations on Fat Consumption

- Consume less than 10% calories from saturated fats and less than 300 mg/day of cholesterol and keep trans fat consumption as low as possible.
- Keep total fat intake between 20-35% of calories (mostly poly- and monounsaturated fats).
- Make meat, poultry, dry bean and milk product choices "lean," "low fat," or "fat free."
- Limit intakes of fats and oils high in saturated and/or trans fats.

U.S. DIETARY GUIDELINES 2005
(Continued)

Selected details of fat consumption recommendations:

- "Most Americans need to decrease their intakes of saturated fat and trans fats, and many need to decrease their dietary intake of cholesterol."
- Food industry has important role in decreasing trans fat content in foods since partially hydrogenated oils account for 80% of total intake.

ADDITIONAL INFLUENCES TO REDUCE TRANS FAT IN U.S. DIET

- FDA labeling regulation (effective 1-1-06)
- FDA consideration of nutrient content claims ("trans fat free," "reduced trans fat")
- Industry desire to improve healthfulness of foods
- Recommendations of health advisory groups (WHO, IOM/NAS)
- Consumer sensitivity to health issues
- Consumer advocacy groups

NEW FOOD LABEL – Nutrition Facts Panel

Nutrition Facts

Serving Size 1 Tbsp (14g)
Servings Per Container 32

Amount Per Serving

Calories 100	Calories from Fat 100
	% Daily V alue*
Total Fat 11g	**17**%
Saturated 2g	**10**%
Trans Fat 2g	
Polyunsaturated Fat 3.5g	
Monounsaturated Fat 3.5g	
Cholesterol 0mg	**0**%
Sodium 115mg	**5**%
Total Carbohydrate 0g	**0**%
Protein 0g	
Vitamin A 6%	

*Percent Daily Values are based on a 2,000 calorie diet.

INDUSTRY ACTIONS TO REDUCE TRANS FAT CONTENT

Food Manufacturers:

- Reformulation of products

Restaurants:

- Switch to frying oils and food ingredients low or free of trans fats

Retail Food Stores:

- Concentrate sales of “low/free” trans-containing products

CHALLENGES TO OIL/FAT INDUSTRY REGARDING TRANS FAT ALTERNATIVES

- Functionality
- Availability
- Economics
- Logistics

FUNCTIONALITY

- Replacements must provide functional characteristics of materials being replaced

  (firmness of texture, flakiness, crispness, appearance)

- Shortening's functionality determined by level of both saturated fat and trans fat

- Product's shelf-life stability must be maintained

AVAILABILITY

- Major consumer markets (restaurants) require significant source availability.
- New trait-enhanced oils require commitment by food industry to use such oils.
- Time needed to develop trait-enhanced oilseed varieties.

ECONOMICS

- New technology costly
  (interesterification, modified partial hydrogenation, special fatty acid composition oils).
- Trans fat replacements must be price competitive
  (consumer may not buy new products if expensive).
- Premiums for trait-enhanced oils?

LOGISTICS

- No single solution – multiple ingredient alternatives, multiple inventories, multiple suppliers
- Regional supply bases, not national (no geographically diverse suppliers)
- Utilization of existing manufacturing facilities

TRANS FAT REPLACEMENT TECHNOLOGY (Replacement of 3-4 Billion lbs. PHSO)

- Naturally stable oils/fats
  (palm, palm kernel, coconut, corn, cottonseed, animal fats)
- Interesterification (re-arrangement of fatty acids)
  – chemical and enzymatic methods
- Modified partial hydrogenation
  (alteration of variables: time, temperature, catalyst)
- Trait-enhanced oils
  (fatty acid modification through plant breeding:
  e.g., mid-oleic sunflower and soybean, low linolenic
  soybean and canola, high oleic sunflower and canola)

STABLE OILS/FATS CURRENTLY AVAILABLE

- Animal Fats
- Canola (high oleic)
- Coconut
- Corn
- Palm
- Palm Kernel
- Soybean (low linolenic)*
- Safflower (high oleic)
- Sunflower (mid and high oleic)

* Available in limited quantities

PALM OIL IMPORTS

- 2003-04 Imports = 220,300 metric tons
- 2004-05 imports = 408,200 metric tons
  (Food Use approx. 375,000 metric tons)
- 2005-06 imports = 600,000 metric tons?

STABLE OILS AVAILABLE IN FUTURE

	Projected Availability
• Soybean (low linolenic, < 3%)	2005- 2008
• Soybean (low linolenic, < 3.5%; mid oleic ≥ 50%)	2009 – 2012
• Soybean (high stearic, > 30%)	2008 - 2012
• Canola (high stearic, > 30%)	2008 - 2012

LOW LINOLENIC SOYBEANS
PROJECTED AVAILABILITY*

Year	Acres	Production (Bu)	Oil Production (Lb)
2005	200,000	8M	80M
2006	1M	40M	400M
2007	3M	120M	1.2B
2008	5M	200M	2B

* Includes Dupont, Monsanto, Iowa State Varieties

MID OLEIC SOYBEANS
PROJECTED AVAILABILITY

Year	Acres	Production (Bu)	Oil Production (Lb)
2007	100,000	4M	40M
2008	1M	40M	400M
2009	3M	120M	1.2B
2010	5M	200M	2B

KEY MARKETPLACE CHALLENGES

- Availability of TFA replacements
- Meeting existing product's functionality requirements (texture, taste, appearance, stability)
- Costs of TFA replacements
- Utilizing existing manufacturing facilities/efficient distribution of replacements

SUMMARY

- U.S. food industry working diligently to provide trans fat alternatives that will meet objectives of Dietary Guidelines 2005.
- Variety of products currently available.
- More products on the horizon.